



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,471	10/07/2005	Shinji Kishimoto	529.45475X00	2178
20457 7590 10/30/2009 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873				
EXAMINER				
GUPTA, VANI				
ART UNIT		PAPER NUMBER		
3768				
NOTIFICATION DATE		DELIVERY MODE		
10/30/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

dlee@antonelli.com
rrodriguez@antonelli.com
lthenor@antonelli.com

Office Action Summary

Application No.

10/552,471

Applicant(s)

KISHIMOTO, SHINJI

Examiner

VANI GUPTA

Art Unit

3768

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6,8,9,12 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,8,9,12 and 16-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. *Claims 1, 8, 9, 12, and 16 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burke et al. (US 5,517,994) in view of Yoichi (JP 5000138).*

Regarding claims 1, 8, 9, 12, and 16 – 18, Burke et al. discloses an ultrasonic diagnostic system (fig. 1) that is capable of performing self diagnostic tests on the system processing and control channels coupled to the transducer elements (#30) of an ultrasonic probe (#10; col. 7, line 12), and the ultrasonic probe, itself.

As described above, Burke's system comprises a probe that transmits and receives ultrasonic waves to and/or from a test subject (#12 and #38). The system also comprises a diagnostic processor (#20), which is coupled to a number of subsystems, including the ultrasound probe. There also is a beamformer (#14) and an image-and-Doppler processor (#16) (col. 2, lines 45 – 50). The image-and-Doppler processor processes digital echo signals to form an image or to make a diagnostic measurement such as the velocity of blood flow in the subject's body. The resultant image or measurement is displayed on a display (#18) (col. 2, lines 15 – 44; and col. 3, lines 1 – 16).

With further respect to claims 1, 8, 9 and 12, Burke teaches also teaches a judging section: the diagnostic processor operates under the control of, or in conjunction with, a central

system controller (not shown). This allows the diagnostic processor to monitor the probe-air interface by performing “self diagnostic tests,” and adjust operating characteristic of the system electronics accordingly (for example, monitoring and adjusting probe temperature) (Abstract; col. 2, line 15 - col. 8, line 12). Burke et al. also explains that performing self-diagnostic tests is automatically” initiated based on a judgment or determination that that probe is idle, or not in use, or “has been left in the air” (col. 3, ll. 5 – 8; col. 4, ll. 24 – 40; and col. 7, ll. 47 – 55). An idle probe is a form of diagnostic image information, because it an indication that image formation has ceased.

Burke et al. explains that the aforementioned self-diagnostic tests are accomplished to foresee “undetectable failures [that] can lead to a degradation in diagnostic performance” of the probe (col. 1, ll. 40 - 47). Furthermore, Burke et al. explains that based on the results of the diagnostic tests, the ultrasound system can adjust operating characteristics to “compensate for a detected out of tolerance conditions,” or undetectable failures (Abstract).

As Yoichi also explains, based upon the judgment of whether the probe has been left in the air, the ultrasound system can adjust operating characteristics by “interrupting” drive signals of the probe (para. [0002]). This is helpful in preventing heating and the characteristic degrading (Abstract).

As such, it would be prima facie obvious to combine Burke et al. and Yoichi so that one could ensure, along with the periodic self-diagnostic tests, preventing a degradation of the probe elements so that ultrasound images are obtained under optimal system specifications.

With respect to claims 16 – 18, Burke et al. explains that his ultrasonic diagnostic apparatus is capable of displaying status messages about its overall performance and the

performance of its components (col. 7, lines 25 – 40). Applicant should note that the specific features or attributes of the messages themselves and what they represent do not limit the structure of the present application in such a way that it is novel over the prior art. Furthermore, they are not limiting in such a way that Burke's apparatus is not structurally and functionally incapable of generating the messages. Furthermore, Burke is not limited in any way in reference to the display size, the display color, or other display aspects of the message that may change over time.

2. *Claims 2, 6, and 19 – 24 are rejected under 35 USC 103(a) as being obvious over Burke in view of Yoichi (JP 5000138) as applied to Claim 1 above, further in view of Suzuki et al. (US 6,602,196 B2).*

Regarding Claim 2, Burke et al. in view of Yoichi suggests an ultrasonic diagnostic apparatus comprising a diagnostic processor that plays the role of the “judging section,” as explained above.

However, Burke et al. in view of Yoichi does not appear to disclose specifically more than one image-mode processor.

Nonetheless, Suzuki teaches an ultrasonic imaging apparatus, comprising a B-mode processor and a Doppler processor (**fig. 2, #10 and #12; col. 6, lines 28 – 32**). A controller (**fig. 2, #18**) controls the operation of the B-mode processor, Doppler processor (**col. 6, line 65 – col. 7, line 5**), and CFM processor (**col. 7, lines 34 – 40**).

Suzuki also explains that ultrasound imaging is based on an established relationship between the sound-ray density, the scan range and the frame rate (**col. 1, lines 18 – 37**).

Accordingly, Suzuki complements the disclosing of Burke by teaching a controller that is capable of monitoring, when coupled to an image-mode processor, capable of monitoring the intensity of the echoes signals.

Therefore, it would have been prima facie obvious to modify Burke with the teachings of Suzuki to include the controller and image-mode processors such as B-mode, Doppler, and CFM, for wide range of performance to obtain the invention in the instant Claim 2.

Regarding Claim 6, Suzuki teaches “time-sharing” between the B-mode image processor and Doppler image processor (*col. 8, lines 30 – 42*). One of ordinary skill in the art would be aware that this time-sharing capability further would require switching means between different the different imaging modes.

Regarding claims 19 – 24, Burke et al. in view of Yoichi discusses features (a) – (e), as discussed in the rejection of Claim 1, above.

However, Burke et al. in view of Yoichi differs from claims 19 – 24 in that he does not specifically disclose a control section that controls sections wherein the ultrasonic diagnostic apparatus includes a judging section that judges, on the basis of brightness information, or Doppler signal information, or CFM image information.

Nonetheless, Suzuki teaches as such, as explained in the rejection of Claim 2.

Response to Arguments

1. ***Applicant’s arguments on p. 8 of Remarks, filed June 17 16, 2009, with respect to Claim 1 have been fully considered and are persuasive.*** The 35 USC 112 first paragraph rejection of Claim 1 has been withdrawn.

2. *Applicant's arguments on pp. 9 – 13 of Remarks with respect to claims 1, 2, 6, 8, 9 12, and 16 – 24 have been considered but are moot in view of the new ground(s) of rejection.*

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VANI GUPTA whose telephone number is (571)270-5042. The examiner can normally be reached on Monday - Friday (8:30 am - 5:30 pm; EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V. G./
Examiner, Art Unit 3768

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768